WHAT IS CLAIMED IS:

1. An optical path cross-connect device for accommodating a plurality of inter-office transmission line (with wavelength multiplexing) and a plurality of intra-office transmission lines (without wavelength multiplexing), comprising:

a wavelength branching unit provided with each of said inter-office transmission line, for demultiplexing wavelength-multiplexed optical signals entered from said inter-office transmission line to a first optical path group;

an intra-office signal input unit provided with each of said intra-office transmission lines, for repeating a wavelength-non-multiplexed signal entered from said intra-office transmission line to said first optical path group;

"m" pieces of routing units for inputting thereinto an optical signal outputted from any one of said wavelength branching unit or said intra-office signal input unit via said first optical path group, and for converting said optical input signal into a predetermined wavelength to thereby output the wavelength-converted optical signal to a second optical path group, said "m (symbol "m" being an integer and also being larger than 1)" pieces of routing

units being subdivided in a unit of at least "n (symbol "n" being an integer and also being larger than 1)" wavelengths;

a wavelength combining unit for accommodating thereinto said second optical path group and for selectively wavelength-multiplexing said optical signal; and

an intra-office signal output unit for accommodating thereinto said second optical path group and for selectively repeating said optical signal.

2. An optical path cross-connect device as claimed in claim 1 wherein:

the optical signal transferred to said intra-office transmission line is wavelength-multiplexed; and both said intra-office signal input unit and said intra-office signal output unit repeat the wavelength-multiplexed optical signal.

3. An optical path cross-connect device for accommodating a plurality of inter-office transmission lines (with wavelength multiplexing) and a plurality of intra-office transmission lines (without wavelength multiplexing), comprising:

an optical branching unit provided with each of said inter-office transmission line, for branching a

wavelength-multiplexed optical signal entered from said intra-office transmission line into "m (symbol "m" being an integer and also being larger than 1)" pieces of first optical path groups, while maintaining the wavelength-multiplexed state;

an intra-office signal input unit provided with each of said intra-office transmission lines, for repeating a wavelength-non-multiplexed optical signal entered from said intra-office optical transmission line;

"m" pieces of routing units for routing an optical signal within a pre-allocated wavelength range from optical signals outputted from said optical branching unit and said intra-office signal input unit to an inter-office signal output unit, and for converting said optical signal within said pre-allocated wavelength range into a desirable wavelength to route the wavelength-converted optical signal to a second optical path group, said "m (symbol "m" being an integer and also being larger than 1)" pieces of routing units being subdivided in a unit of at least "n (symbol "n" being an integer and also being larger than 1)" wavelengths;

a wavelength combining unit for accommodating thereinto said second optical path group and for selectively wavelength-multiplexing said optical signal;

and

an intra-office signal output unit for accommodating thereinto said second optical path group and for selectively repeating said optical signal.

4. An optical path cross-connect device as claimed in claim 3 wherein:

the optical signal transferred to said inter-office transmission line is wavelength-multiplexed; and both said intra-office signal input unit and said intra-office signal output unit repeat the wavelength-multiplexed optical signal.

5. An optical path cross-connect device as claimed in claim 1 wherein:

said intra-office signal input unit is constituted by an optical space switch; said routing unit is arranged by an optical space switch and a wavelength converter; and said intra-office signal output unit is arranged by an optical space switch.

6. An optical path cross-connect device as claimed in claim 2 wherein:

said intra-office signal input unit is arranged by a wavelength-division demultiplexer, and an optical space switch; said routing unit is constituted by an optical space switch and a wavelength converter; and said

intra-office signal output unit is arranged by an optical space switch, a wavelength converter, and a wavelength-division multiplexer.

7. An optical path cross-connect device as claimed in claim 3 wherein:

said intra-office signal input unit is constituted by an optical space switch; said routing unit is arranged by a wavelength-division demultiplexer, an optical space switch, a wavelength converter and a wavelength-division multiplexer; and said intra-office signal output unit is arranged by an optical space switch.

8. An optical path cross-connect device as claimed in claim 4 wherein:

said intra-office signal input unit is arranged by a wavelength-division demultiplexer, and an optical space switch; said routing unit is constituted by a wavelength-division demultiplexer, an optical space switch, a wavelength converter and a wavelength-division multiplexer; and said intra-office signal output unit is arranged by an optical space switch, a wavelength converter, and a wavelength-division multiplexer.

9. An optical path cross-connect device as claimed in claim 3 any one of the preceding claims 5 to 8 wherein:

in said intra-office signal input unit and said

~~inter-office signal output unit, a regenerator constructed~~ of both an opto-electric converter ~~and~~ an electric-optical converter ~~is~~ employed at any one of an input of said optical space ~~switch and~~ an output ~~thereof~~.

10. An optical network wherein:

a plurality of the optical path cross-connect devices as claimed in ~~any one of the preceding claims 1 to 4~~ claim 1 are employed so as to constitute said optical network.

signal through the second optical path group, and an intra-office signal output means for selectively repeating the optical signal at a post stage of the above-explained routing means.